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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/287,406	04/06/1999	HIROYUKI SHINBATA	1232-4532	6272

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EXAMINER
CHOOBIN, BARRY

ART UNIT	PAPER NUMBER
2621	

DATE MAILED: 09/11/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.	Applicant(s)
09/287,406	Shinbata
Examiner	**Art Unit**
Barry Choobin	2621

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) ☒ Responsive to communication(s) filed on *Jun 24, 2002*.

2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.

3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

Disposition of Claims

4) ☒ Claim(s) *1-9 and 11-31* is/are pending in the application.

4a) Of the above, claim(s) *21, 22, 25, and 28* is/are withdrawn from consideration.

5) ☒ Claim(s) *15-20* is/are allowed.

6) ☒ Claim(s) *1-9, 11-14, 23, 24, 26, 27, and 29-31* is/are rejected.

7) ☐ Claim(s) _____ is/are objected to.

8) ☐ Claims _____ are subject to restriction and/or election requirement.

Application Papers

9) ☐ The specification is objected to by the Examiner.

10) ☐ The drawing(s) filed on _____ is/are a) ☐ accepted or b) ☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13) ☒ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a) ☒ All b) ☐ Some* c) ☐ None of:

1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

*See the attached detailed Office action for a list of the certified copies not received.

14) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

a) ☐ The translation of the foreign language provisional application has been received.

15) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s). _____
4) ☐ Interview Summary (PTO-413) Paper No(s). _____
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other:

DETAILED ACTION

Response to Arguments

1. Applicant's arguments filed on June 24, 2002 have been fully considered but they are not persuasive.

Applicant argues that claims 21, 22, 25 and 28 are directed to the invention of group I (after amending the said claims).

The Examiner disagrees. Because the said claims still require a rotation angle indication step of indicating an angle of a rotation axis onto which the end points stored...., which are drawn to class 382, subclass 289.

Therefore, the restriction is proper.

Claim Rejections - 35 USC § 102

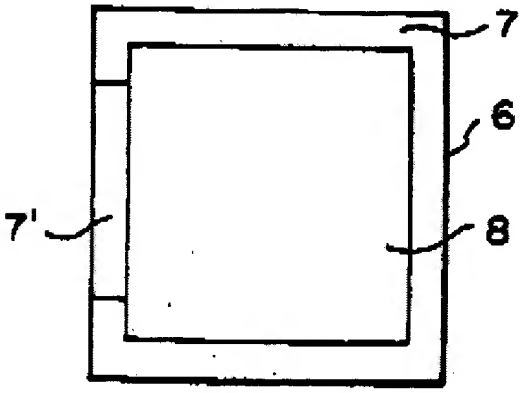
2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless -
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1 - 9 and 11 are rejected under 35 U.S.C. 102(b) as being anticipated by Takeo (U.S. Patent 5,091,970).

As to claims 1 and 9, Takeo discloses an image processing method comprising: a step of determining a plurality of areas arranged in a predetermined direction on an image and each having a predetermined shape (column 5, lines 22 - 34 wherein "(ii) based on said image signal, calculating a first representative value which is representative of the values of the image signal corresponding to the overall peripheral portion of said recording medium (for example, a region 7 shown in FIG. 1B) or corresponding to part of said peripheral portion (for example, a region 7' shown in FIG. 1B), and a second representative value which is representative of the values of the image signal corresponding to the overall area of said recording medium (i.e. the area composed of the regions 7 and 8 shown in FIG. 1B) or corresponding to approximately the center portion of said recording medium (for example, the region 8 shown in FIG. 1B) (step 2),

FIG.1B

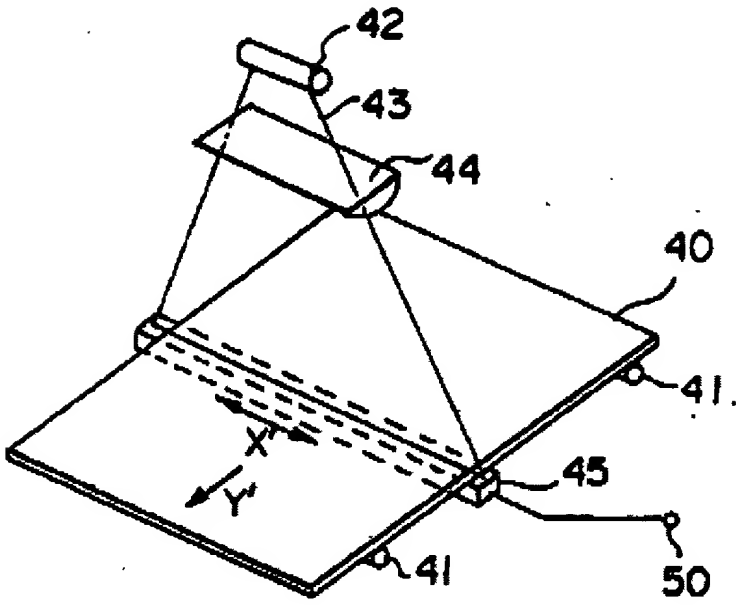


step of calculating a secondary difference value of density values from a plurality of primary difference values, wherein each primary difference value corresponds to a difference between density values each of which represents a respective area in one dimensional image data through said object area representing the respective areas in said plurality of areas (refer for example to column 5, lines 35 - 40 wherein comparing said first representative value and said second representative value with each other (step 3), and a step of judging one end point of an irradiation area from said secondary difference values calculated in said calculating step (refer for example to column 5, lines 37 - 40 wherein judging the presence or absence of a limited irradiation field on the basis of the results of the comparison is discloses.).

As to claim 2, Takeo discloses a step for determining said radiation area from a plurality of end points of the irradiation area judged in said judging step (refer for example to column 4, lines 11- 18 wherein disclosed methods for recognizing an irradiation field, several points which are considered to be present on a contour of the irradiation field, i.e. several prospective contour points, are detected. Thereafter, the straight lines or curves connecting the prospective contour points are detected, and the region surrounded by the straight lines or curves is recognized as the irradiation field.).

As to claims 3, 4, 5, and 6, Takeo discloses said density values representing the respective area in said plurality or areas are average density values in the respective areas(refer for example to column 6, lines 3 - 18 wherein the first representative value and the second representative value each may be, for example, the mean value of the corresponding image signal, the median value of the corresponding image signal, the value of the formula expressed as (maximum value of the corresponding image signal +minimum value of the corresponding image signal)/2, or the value of the image signal corresponding to a cumulative value determined from a cumulative probability density function (e.g. a function B shown in FIG. 4) which represents cumulative values of frequencies of occurrence of respective values of the corresponding image signal. The first representative value and the second representative value need not be calculated

FIG.5



necessarily with the same operating process. For example, both of them need not be mean values necessarily.).

As to claim 7, Takeo discloses density values representing the respective areas in the plurality of areas are calculated using integrated values in a predetermined direction of pixels in said plurality of areas (refer for example to column 10, lines 23 - 27 wherein With reference to FIG. 5, a sheet of X-ray film 40 on which an X-ray image has been recorded is placed at a predetermined position, and is conveyed in the direction indicated by the arrow Y' by a film conveyance means 41.)

As to claim 8, Takeo discloses density values representing the respective areas in said plurality of areas are obtained by smoothing said integrated values (refer for example to column 2, lines 32 - 39 wherein in the final read out, the stimulable phosphor sheet is scanned with a light beam having an energy level higher than the energy level of the light beam used in the preliminary read out, and the radiation image is read out with the factors affecting the image signal **adjusted to appropriate values** on the basis of the results of an analysis of the preliminary read-out image signal.).

Claim 10 is cancelled.

As to claim 11, Takeo discloses using variance (refer for example to column 6, lines 3 - 15 wherein the first representative value and the second representative value each may be, for example, the mean value of the corresponding image signal, the median value of the corresponding image signal, the value of the formula expressed as (maximum value of the corresponding image signal +minimum value of the corresponding image signal)/2, or the value of the image signal corresponding to a cumulative value determined from a cumulative probability density function (e.g. a function B shown in FIG. 4) which represents cumulative values of frequencies of occurrence of respective values of the corresponding image signal (variance).).

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

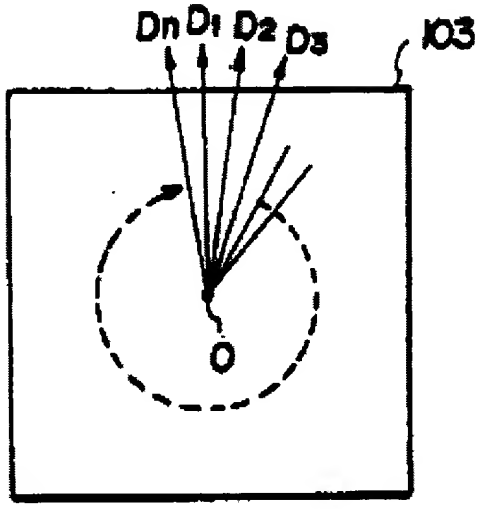
> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. Claims 12 - 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takeo in view of Takeo (U.S. Patent 4,992,663).

As to claim 12, Takeo (970) fails to disclose area in one dimensional image data through said object area.

But on the other hand, Takeo (663) discloses the differentiation processing section 221 differentiates the components of the preliminary read-out image signal Sp corresponding to positions on the stimulable phosphor sheet 103 located along a line in the direction of D1, then

FIG.3



along lines in the directions D2, D3, . . . , Dn shown in FIG. 3. **Differentiation processing may be of the <u>one</u> -dimensional** type of first or higher order, or may be of the two-dimensional type of first or higher order.

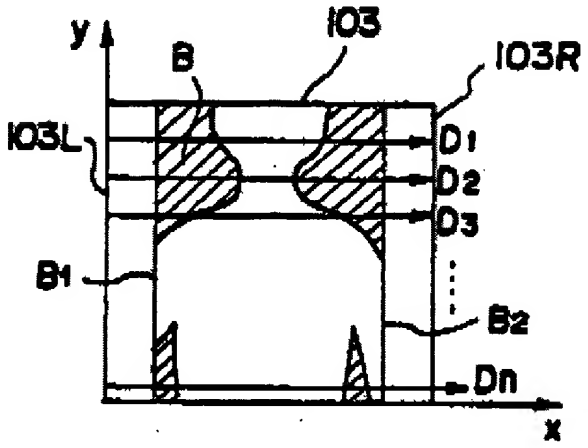
In cases of a discretely sampled image, differentiation is equivalent to **calculation of the difference between the values of neighboring image signal components.** In this embodiment, the difference in the values of neighboring image signal components is calculated. (Refer for example to column 13, lines 13 - 26).

Therefore, it would have been obvious to a person or ordinary skill in the art at the time the invention was made to provide the differentiation process of Takeo (663) with the work of

Takeo (970) in order to improve the signal extraction particularly the prospective contour point signal which is consider ed to be present on the irradiation field (refer for example to column 13, lines 43 - 48).

As to claim 13, Takeo (663) discloses if the coordinates are close to each other (no differentiation) or otherwise judging that said area includes the irradiation area (refer for example to column 21, lines 29 - 50 wherein the differentiation processing section 221' differentiates the preliminary read-out image signal Sp, which has been digitized, along a single line D1, then along lines D2, D3, . . . , Dn shown in FIG. 20 . In this embodiment, it is known in advance that the irradiation field B has a rectangular shape on a stimulable phosphor sheet 103 as shown in FIG. 20 . The lines D1, D2, D3, . . . , Dn intersect the portions B1 and B2 of the contour of the irradiation field B at right angles. The contour portions B1 and B2 are spaced at equal distances from a left edge 103L and a right edge 103R of the stimulable phosphor sheet 103, respectively. Differentiation processing may be of the one-dimensional type of first or higher order, or may be of the two-dimensional type of first or higher order. In cases where the image is discretely sampled, differentiation is equivalent to the calculation of the difference between neighboring image signal components. In this embodiment, the difference between neighboring image signal components is calculated. Differentiation processing is described in detail in U.S. patent application Ser. No. 760,862.).

FIG.20



Claims 14, 23, 24, 26, 27, 29, 30 and 31 are similarly analyzed and rejected.

Allowable Subject Matter

Claims 15 - 20 are allowable.

This Office Action is non- Final.

CONTACT INFORMATION

Any inquiry concerning this communication from the examiner should be directed to Barry Choobin whose telephone number is (703) 306-5787. The examiner can normally be reached on Monday through Friday from 8:00 a.m. to 4:30 p.m. If attempts to reach examiner by telephone are unsuccessful, the examiner's supervisor, Leo Boudreau, can be reached at (703) 305-4706.

Any response to this action should be mailed to:Commissioner of Patents and Trademarks, Washington, D.C. 20231 or faxed to:(703) 308-9051, (for formal communications intended for entry) (703) 308-5397 (for informal or draft communications, please label "PROPOSED" or "DRAFT").Hand delivered responses should be brought to Crystal Park II, 2121 Crystal Drive, Arlington, VA., Sixth Floor (Receptionist).

Any inquiry of a general nature or relating to the status of this application should be directed to the Group Receptionist whose telephone number is (703)305-3900.

Barry Choobin
Patent Examiner
Art Unit 2621

LEO BOUDREAU
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600

As to claim 8, Takeo discloses density values representing the respective areas in said plurality of areas are obtained by smoothing said integrated values (refer for example to column 2, lines 32 - 39 wherein in the final read out, the stimulable phosphor sheet is scanned with a light beam having an energy level higher than the energy level of the light beam used in the preliminary read out, and the radiation image is read out with the factors affecting the image signal **adjusted to appropriate values** on the basis of the results of an analysis of the preliminary read-out image signal.).

Claims 10 – 22 are cancelled.

As to claim 24, Takeo discloses an image processing apparatus comprising; means for detecting an end point of an irradiation area based on pixel values in an object area (refer for example to column 5, lines 14 – 17);

Means for evaluating a detection result by said detection means (refer for example to column 5, lines 22 – 26 wherein calculating representative value corresponds to evaluation detection means);

And means for judging whether an irradiation area is limited in the object area baes on an evaluation result by said eveluation means (refer for example to column 5, lines 38 – 40 wherein Judjing the presence or absence of a limited irradiation field on the bases of the results of the comparison is one of the steps comprised in takeo).

Claims 25 and 28 are cancelled.

Claim Rejections - 35 USC § 103

III. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

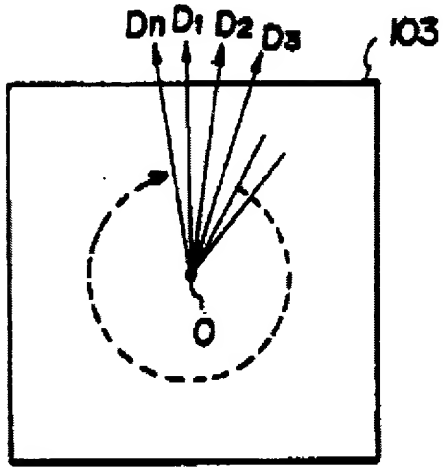
(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

IV. Claims 33, 34, 36 rejected under 35 U.S.C. 103(a) as being unpatentable over Takeo in view of Takeo (U.S. Patent 4,992,663).

As to claim 36, Takeo (970) fails to disclose area in one dimensional image data through said object area.

But on the other hand, Takeo (663) discloses the differentiation processing section 221 differentiates the components of the preliminary read-out image signal Sp corresponding to positions on the stimulable phosphor sheet 103 located along a line in the direction of D1, then

FIG.3



along lines in the directions D2, D3, . . . , Dn shown in FIG. 3. **Differentiation processing may be of the one -dimensional** type of first or higher order, or may be of the two-dimensional type of first or higher order.

In cases of a discretely sampled image, differentiation is equivalent to **calculation of the difference between the values of neighboring image signal components.** In this embodiment, the difference in the values of neighboring image signal components is calculated. (Refer for example to column 13, lines 13 - 26).

Therefore, it would have been obvious to a person or ordinary skill in the art at the time the invention was made to provide the differentiation process of Takeo (663)

with the work of Takeo (970) in order to improve the signal extraction particularly the prospective contour point signal which is consider ed to be present on the irradiation field (refer for example to column 13, lines 43 - 48).

As to claims 33 and 34, Takeo (663) discloses variance positions of an end points are calculated (refer for example to column 4, lines 45 – 59 wherein the irradiation field is recognized by obtaining digital image data for a plurality of positions on the stimulable phosphor sheet from the image signals, detecting prospective edge points, which are considered to be edge portions of the irradiation field on the stimulable phosphor sheet, on the basis of the image data of positions radially outwardly arranged in a plurality of directions from a predetermined point inside the irradiation field, and recognizing as the irradiation field the region surrounded by the lines passing through the prospective edge points. Alternatively, a prospective contour point may be detected by, for example, a method utilizing pattern matching, or a method wherein a straight line is applied and the contour of an irradiation field is discriminated from an inclination of the straight line.).